

6,905,935.

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**FROM: Winston Hsu, PATENT AGENT, REG. NO.: 41,526**

**SERIAL NO.: 10/707,260**

**ATTORNEY DOCKET NO.: NAUP0535USA**

**SUBJECT: REQUEST FOR CERTIFICATE OF  
CORRECTION**

**TOTAL PAGES: 10 PAGES (INCLUDING COVER PAGE)**

**Winston Hsu JUL 15 2005**

**NAUP0535USA0\_AS\_1**

**JUL 20 2005**

PTO/SB/97 (09-04)

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Application Number: 10/707,260

(1) Transmittal Form	1 PAGE
(2) Fee Transmittal Form	1 PAGE
(3) Statement of request for COC	2 PAGES
(4) Attachments	4 PAGES

This collection of information is required by 37 CFR 1.8. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1.8 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/21 (09-04)

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/707,260	
	Filing Date	12/02/2003	
	First Named Inventor	Jing-Horng Gau	
	Art Unit	2818	
	Examiner Name	David Nelms	
Total Number of Pages in This Submission	8	Attorney Docket Number	NAUP0535USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): -Statement of request for COC -A copy of the front page of the Patent -A copy of the notice of recordation of assignment document
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	North America Intellectual Property Corporation		
Signature	<i>Winston Hsu</i>		
Printed name	Winston Hsu		
Date	JUL 15 2005	Reg. No.	41,526

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
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PTO/SB/17 (12-04)

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Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

**FEE TRANSMITTAL**  
**For FY 2005****Complete if Known**

Application Number	10/707,260
Filing Date	12/02/2003
First Named Inventor	Jing-Hong Gau
Examiner Name	David Nelms
Art Unit	2818
Attorney Docket No.	NAUP0535USA

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 0.00**METHOD OF PAYMENT** (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_

☒ Deposit Account Deposit Account Number: 50-3105 Deposit Account Name: North America Intellectual Property Corp.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

**Total Claims**      **Extra Claims**      **Fee (\$)**      **Fee Paid (\$)**      **Multiple Dependent Claims**

\_\_\_\_\_ - 20 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_      **Fee (\$)**      **Fee Paid (\$)**

HP = highest number of total claims paid for, if greater than 20

**Indep. Claims**      **Extra Claims**      **Fee (\$)**      **Fee Paid (\$)**

\_\_\_\_\_ - 3 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

**Total Sheets**      **Extra Sheets**      **Number of each additional 50 or fraction thereof**      **Fee (\$)**      **Fee Paid (\$)**

\_\_\_\_\_ - 100 = \_\_\_\_\_ / 50 = \_\_\_\_\_ (round up to a whole number) x \_\_\_\_\_ = \_\_\_\_\_

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other: \_\_\_\_\_

**SUBMITTED BY**

Signature	<i>Winston Hsu</i>	Registration No. (Attorney/Agent)	41,526	Telephone	302-729-1562
Name (Print/Type)	Winston Hsu	Date	JUL 15 2005		

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JUL 20 2005

**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent No.: 6,905,935 Issue Date: 06/14/2005  
5 App. No.: 10/707,260 Filing Date: 12/02/2003  
Inventors : Jing-Horng Gau et al.  
Examiner: David Nelms Art Unit: 2818  
Docket No.: NAUP0535USA

10 Title: METHOD FOR FABRICATING A VERTICAL BIPOLAR JUNCTION  
TRANSISTOR

To: Commissioner for Patents  
P.O. BOX 1450  
15 Alexandria, VA 22313-1450

Subject: Request for Certificate of Correction under 37 CFR 1.322

Dear Sir,  
20

Upon reviewing the above-identified patent, patentee noted the name of the assignee should be corrected. The notice of recordation of assignment document indicates this as an Office mistake of consequence. As the agent of record, I hereby request that a Certificate of Correction be issued under 37 CFR 1.322 to correct the  
25 assignee's name from "United Microelectronics Corp." to "United Microelectronics Corp."

Attachments

\* A copy of the front page of the Patent

30 \* A copy of the notice of recordation of assignment document

Respectfully submitted,

Winston Hsu

Date: JUL 15 2005

Winston Hsu, Patent Agent No. 41,526

5 P.O. BOX 506, Merrifield, VA 22116, U.S.A.

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US006905935B1

(12) **United States Patent**  
Gau et al.

(10) **Patent No.:** US 6,905,935 B1  
(45) **Date of Patent:** Jun. 14, 2005

(54) **METHOD FOR FABRICATING A VERTICAL BIPOLAR JUNCTION TRANSISTOR**

(75) **Inventors:** Jing-Horng Gau, Hsin-Chu Hsien (TW); Anchor Chen, Hsin-Chu (TW)

(73) **Assignee:** United Microelectronics Corp., Hsin-Chu (TW)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** 10/707,260

(22) **Filed:** Dec. 2, 2003

(51) **Int. Cl.:** H01L 21/331

(52) **U.S. Cl.:** 438/370; 257/592

(58) **Field of Search:** 438/336, 369-377, 438/341, 481; 257/583, 592

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,883,772 A \* 11/1989 Cloves et al. .... 438/369

4,916,083 A \* 4/1990 Monkowski et al. .... 438/367

\* cited by examiner

*Primary Examiner*—David Nelms

*Assistant Examiner*—Calvin Lee

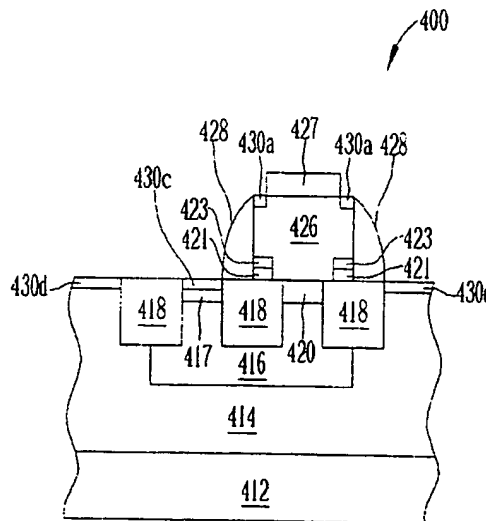
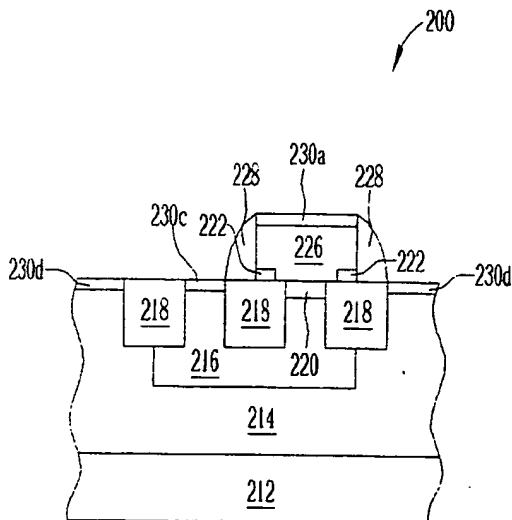
(74) *Attorney, Agent, or Firm*—Winston Hsu

(57)

# ABSTRACT

A semiconductor wafer includes a first doping region of a first conductivity type, a second doping region of a second conductivity type, and a plurality of isolated structures positioned on surfaces of the first doping region and the second doping region. A third doping region of the first conductivity type is formed in an upper portion of the second doping region. A shielding layer is formed and a portion of the shielding layer is removed to form an opening shielding layer to expose a portion of the third doping region. Subsequently, a doping layer of the second conductivity type is formed on a surface of the third doping region. A self-aligned silicidation process is performed to form a silicide layer on the surfaces of the second doping region, the third doping region and the doping layer, the silicide layer functioning as a contact region of a vertical bipolar junction transistor.

20 Claims, 17 Drawing Sheets



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DECEMBER 02, 2003

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MERRIFIELD, VA 22116

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RECORDATION DATE: 12/02/2003

REEL/FRAME: 014164/0077  
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:  
GAU, JING-HORNG

DOC DATE: 12/02/2003

ASSIGNOR:  
CHEN, ANCHOR

DOC DATE: 12/02/2003

ASSIGNEE:  
UNITED MICROELECTRONICS CORP.  
NO.3, LI-HSIN ROAD 2, SCIENCE-  
BASED INDUSTRIAL  
PARK  
HSIN-CHU CITY, TAIWAN

SERIAL NUMBER: 10707260  
PATENT NUMBER:

FILING DATE:  
ISSUE DATE:

014164/0077 PAGE 2

STEVEN POST, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

## PATENT ASSIGNMENT

Electronic Version v07  
Stylesheet Version v02

12/02/2003  
800009220

SUBMISSION TYPE:	NEW ASSIGNMENT	APPLICATION NUMBER 10/707260
NATURE OF CONVEYANCE:	ASSIGNMENT OF ASSIGNOR'S INTEREST	

## CONVEYING PARTY DATA

Name	Execution Date
Jing-Horng Gau	2003-12-02
Anchor Chen	2003-12-02

## RECEIVING PARTY DATA

Name	Street Address	Internal Address	City	State/Country
UNITED MICROELECTRONICS CORP.	No.3, Li-Hsin Road 2, Science-Based Industrial	Park	Hsin-Chu City	TAIWAN

## CORRESPONDENCE DATA

FAX NUMBER: 886229295950

*Correspondence will be sent via US Mail when the fax attempt is unsuccessful.*

When the customer number has been provided, the Office of Public Records will obtain the correspondence data from the official record on file at the USPTO.

CUSTOMER NUMBER: 027765

NAME OF PERSON SIGNING:	WINSTON HSU
DATE SIGNED:	2003-11-28

Total Attachments: 2  
source=NAUP0535ASS1.tif  
source=NAUP0535ASS2.tif